

# Source Water Assessment Program (SWAP) Report For IMMACULATE HEART OF MARY SCHOOL



Prepared by the  
Massachusetts Department of  
Environmental Protection,  
Bureau of Resource Protection,  
Drinking Water Program

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Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	IMMACULATE HEART OF MARY SCHOOL
<i>PWS Address</i>	282 STILL RIVER RD.
<i>City/Town</i>	HARVARD
<i>PWS ID Number</i>	2125011
<i>Local Contact</i>	BROTHER ANTHONY BRACKETT
<i>Phone Number</i>	(978) 456-8877

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
WELL #1	2125011-01G	100	400	Moderate
WELL #2	2125011-02G	100	409	Moderate

## What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

## Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

## Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

### Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

### This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

## 1. Description of the Water System

There are two bedrock wells. Well #1 (O1G) is 350 feet deep and Well #2 (O2G) is 630 feet deep. The Two wells for the facility are located between the on-site church and the school building. Well #1 has a Zone 1 of 100 and an Interim Wellhead Protection Area (IWPA) of 400 feet. Well #2 has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 409. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above.

### What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

### What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

## 2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

#### Key issues include:

1. **Inappropriate activities in Zone I;**
2. **An Aboveground storage tank (AST) with heating oil;**
3. **Septic system;**
4. **Stormwater drain; and**
5. **Landscaping and lawn care.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only low and moderate threat land use or activity in the IWPA.

1. **Zone I** - Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains school building and the church, and parking areas. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

#### Recommendations:

- ✓ Make sure that road and parking lot drainage drains away from the wells.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Do not use fertilizer on lawn within the Zone I.

2. **Aboveground Storage Tank (AST) with fuel oil** – An AST with heating oil is within the IWPA. If managed improperly, Aboveground Storage Tanks can be a potential source of contamination due to leaks or spills of the chemicals they store. All tanks in close proximity to water supply wells should be upgraded to meet current construction standards.

#### Recommendation:

- ✓ Aboveground storage tanks should be located on an impermeable surface and contained in an area large enough to hold 110% of the complete liquid volume, should a spill occur.
- ✓ Upgrade the AST to incorporate proper containment and safety practices. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding

**Table 2: Table of Activities within the Water Supply Protection Areas**

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
School	Parking spaces	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Aboveground Storage Tank	No	Yes	Moderate	
	Septic System	No	Yes	Moderate	See septic systems brochure in the attachments
	Stormwater drains	Yes	Yes	Low	
	Landscaping and lawn care	Yes	Yes	Moderate	Fertilizer and pesticide use
	Structures	Yes	Yes	- - -	Non-water supply structures in Zone I

\* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/).

## Glossary

**Zone I:** The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

**IWPA:** A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

**Zone II:** The primary recharge area defined by a hydrogeologic study.

**Aquifer:** An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

**Hydrogeologic Barrier:** An underground layer of impermeable material that resists penetration by water.

**Recharge Area:** The surface area that contributes water to a well.

ASTs.

3. **Septic system** - The septic systems are located within the IWPA of the wells. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

### Recommendations:

- ✓ Staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

4. **Stormwater drains** - The stormwater drains are located within the IWPA. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

### Recommendations:

- ✓ Have the catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ The Department recommends the public water supplier consider nonstructural techniques such as parking lot sweeping to reduce the amount of potential contaminants in storm water runoff. Additionally, the public water supplier may want to consider structural BMPs (e.g. stormwater swale, detention basin, etc.) as part of comprehensive storm water management plan for the site (refer to Storm Water Management Handbook, Volume 1 and 2 for information on BMPs). Fertilizer is applied to the lawn that is located within the Zone 1 and IWPA.

5. **Landscaping and lawn care** - Small amounts of fertilizer and pesticide is applied within the IWPA. If improperly applied or stored, fertilizers and pesticides can be potential sources of contamination to the water supply.

### Recommendations:

- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on the school property.
- ✓ Do not use fertilizers or pesticides in the Zone I.

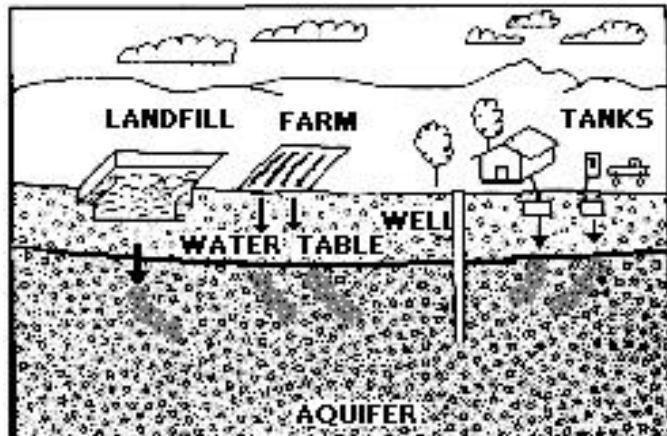


Figure 1: Example of how a well could become contaminated by different land uses and activities.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

## 3. Protection Recommendations

Immaculate Heart of Mary School should review and adopt the following recommendations at the facility:

### Zone I:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

**For More Information:**

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:  
[www.state.ma.us/dep/brp/dws](http://www.state.ma.us/dep/brp/dws).

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

**Training and Education:**

- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Incorporate groundwater education into school curriculum

**Facilities Management:**

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.
- ✓ Work with your community to ensure that stormwater runoff in the IWPA is directed away from the well and is treated according to DEP guidance

**Planning:**

- ✓ Work with local officials in Harvard to include the school IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

**Funding:**

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

**4. Attachments:**

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Healthy Schools Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

**Additional Documents:**

To help with source protection efforts, more information is available by request or online at [www.state.ma.us/dep/brp/dws](http://www.state.ma.us/dep/brp/dws), including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix